Journal of Fish Diseases

Volume 8

January–November 1985

Contents

Blackwell Scientific Publications

OXFORD LONDON EDINBURGH BOSTON PALO ALTO MELBOURNE

Editors and editorial board

EDITORS

R. J. ROBERTS *Institute of Aquaculture, University of Stirling, Scotland*
R. WOOTTEN *Marine Laboratory, Aberdeen, Scotland*

EDITORIAL BOARD

O. N. BAUER *Leningrad, USSR*
G. R. BELL *Nanaimo BC, Canada*
N. N. FIJAN *Zagreb, Yugoslavia*
J. L. FRYER *Corvallis, Or, USA*
J. C. HARSHBARGER *Washington DC, USA*
P. M. HINE *Wellington, New Zealand*
G. L. HOFFMAN *Arkansas, USA*
P. DE KINKELIN *Paris, France*
O. LJUNGBERG *Stockholm, Sweden*
J. LOM *Prague, Czechoslovakia*
A. L. S. MUNRO *Aberdeen, Scotland*
H. REICHENBACH-KLINKE *Munich, Federal Republic of Germany*
T. SANO *Tokyo, Japan*
S. SARIG *nir-David, Israel*
K. E. WOLF *Kearneysville, W. Va, USA*

Editorial policy. The *Journal of Fish Diseases* is an international journal which publishes scientific papers, short communications, review articles and book reviews. The remit of the journal covers all aspects of disease in wild and cultured fish and shellfish. Research papers are accepted on the basis of their originality and the discussion presented. Every paper is read and criticized by reviewers in whose field the paper lies. Where appropriate reviewers other than those on the Editorial Board are consulted. However, final responsibility for the selection of papers rests with the Editors.

Editorial correspondence. Papers and other material for publication should be sent to the Editors (see Notice to contributors on back inside cover). Other members of the Editorial Board will be pleased to advise overseas contributors.

Subscription rates. The *Journal of Fish Diseases* is published bimonthly and the subscription price for 1985 is £90.00 (UK), £109.00 (overseas) and $205.00 (USA and Canada) post free. The Journal is delivered to North America by accelerated surface post (a.s.p.) and subscribers there can expect to receive their copies within 2 weeks of British publication. Current issues for the Indian sub-continent, Australasia and the Far East are sent by air to regional distribution points from where they are forwarded to subscribers by surface mail. Any back numbers are normally despatched by surface to all regions, except North America, where they are sent by a.s.p., and India, where they are sent by air freight.

Business correspondence. All matters relating to orders and subscriptions, back numbers and offprints should be sent to Blackwell Scientific Publications, P.O. Box 88, Oxford, England.

Advertisement bookings. Enquiries should be sent to the Advertisement Manager, Blackwell Scientific Publications, Osney Mead, Oxford OX2 0EL, England (telephone 0865 240201).

©1985 Blackwell Scientific Publications Ltd. Published by Blackwell Scientific Publications Ltd, Osney Mead, Oxford, OX2 0EL, England. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of the copyright owner. Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by Blackwell Scientific Publications Ltd for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of $02.00 per copy is paid directly to CCC, 27 Congress Street, Salem, MA 01970, USA. 0140–7775/85 $02.00.

Printed in Great Britain by Adlard & Son Ltd, Dorking, Surrey.

CONTENTS

NUMBER 1: JANUARY 1985

1 A comparison of detection methods for infectious haematopoietic necrosis virus
Y. L. HSU AND J. C. LEONG

13 Pathological conditions in the liver of ruffe, *Gymnocephalus cernua* (L.), from the Elbe estuary
HEIDEMARIE KRANZ AND N. PETERS

25 Effects of temperature and salinity on the course of infection with the haemoflagellate *Cryptobia salmositica* in juvenile Pacific salmon, *Oncorhynchus* spp.
SUSAN M. BOWER AND L. MARGOLIS

35 The ontogenetic development of the reticulo-endothelial system in the rainbow trout, *Salmo gairdneri* Richardson
MARY F. TATNER AND MARGARET J. MANNING

43 Immunogenicity of vaccines from a virulent and an avirulent strain of *Aeromonas salmonicida*
G. OLIVIER, T. P. T. EVELYN AND R. LALLIER

57 Histopathology of rainbow trout, *Salmo gairdneri* Richardson, exposed to diurnally fluctuating un-ionized ammonia levels in static-water ponds
R. W. SODERBERG

65 Histopathology of bullminnows, *Fundulus grandis* Baird & Girard, infected with a non-haemolytic group B *Streptococcus* sp.
VICTORIA RASHEED, C. LIMSUWAN AND J. PLUMB

75 Light and electron microscopy of *Myxobolus hendricksoni* sp. nov. (Myxozoa: Myxobolidae) infecting the brain of the fathead minnow, *Pimephales promelas* Rafinesque
L. G. MITCHELL, C. L. SEYMOUR AND J. M. GAMBLE

91 Evidence for the presence of a viral non-lymphocystis type disease in winter flounder, *Pseudopleuronectes americanus* (Walbaum), from the north-west Atlantic
C. J. EMERSON, J. F. PAYNE AND A. K. BAL

103 Strawberry disease in rainbow trout, *Salmo gairdneri* Richardson
D. P. OLSON, M. H. BELEAU, R. A. BUSCH, S. ROBERTS AND R. I. KRIEGER

113 Control of bacterial kidney disease in Atlantic salmon, *Salmo salar* L., by dietary modification
S. P. LALL, W. D. PATERSON, J. A. HINES AND N. J. ADAMS

Short Communications

125 A report of bacterial microcolonies on the surface of *Gyrodactylus* (Monogenea)
R. CUSACK AND D. K. CONE

129 Lesions of a rock beauty, *Holacanthus tricolor* (Bloch), from Puerto Rico
J. M. GRIZZLE AND E. H. WILLIAMS JR

135 Age-dependent accumulation of macrophage aggregates in the yellow perch, *Perca flavescens* (Mitchill)
C. L. BROWN AND C. J. GEORGE

139 Experimental intraperitoneal infection of channel catfish, *Ictalurus punctatus* (Rafinesque), with *Ichthyophthirius multifiliis* (Fouquet)
H. W. DICKERSON, A. L. LOHR AND J. B. GRATZEK

143 Bilateral multicystic spermatocoeles in the testes of a toadfish, *Opsanus tau* (L.)
J. C. BURNS AND M. L. FINE

NUMBER 2: MARCH 1985

145 *Heteropolaria colisarum* Foissner & Schubert, 1977 (Protozoa: Epistylididae) of North American freshwater fishes
W. FOISSNER, G. L. HOFFMAN AND A. J. MITCHELL

161 Identification of lymphocytes in the epidermis of the rainbow trout, *Salmo gairdneri* Richardson
MARIA C. PELETEIRO AND R. H. RICHARDS

173 Experimental infection of lemon sharks, *Negaprion brevirostris* (Poey), with *Vibrio* species
D. J. GRIMES, S. H. GRUBER AND E. B. MAY

181 Necrosis of the hepatopancreas in *Penaeus monodon* and *P. stylirostris* (Arthropoda, Decapoda) with red disease
D. V. LIGHTNER AND R. M. REDMAN

189 The ontogenetic development of the reticulo-endothelial system in the rainbow trout, *Salmo gairdneri* Richardson
MARY F. TATNER AND MARGARET J. MANNING

197 Proliferative kidney disease in brown trout, *Salmo trutta* L., and Atlantic salmon, *Salmo salar* L., parr: histopathological and epidemiological observations
A. E. ELLIS, A. H. MCVICAR AND A. L. S. MUNRO

209 Evaluation of antimicrobial compounds for the control of bacterial kidney disease in rainbow trout, *Salmo gairdneri* Richardson
B. AUSTIN

221 Notes on kidney-infecting species of the genus *Sphaerospora* Thélohan (Myxosporea), including a new species *S. gobionis* sp. nov., and on myoxosporean life cycle stages in the blood of some freshwater fish
JIŘÍ LOM, MILENA PAVLÁSKOVÁ AND IVA DYKOVÁ

Short Communications

233 Spawning papillomatosis of smelt, *Osmerus eperlanus* L., from the Elbe estuary
KERSTIN ANDERS AND H. MÖLLER

237 Steatitis in Sunapee trout, *Salvelinus alpinus oquassa* Girard
R. L. HERMAN AND F. W. KIRCHEIS

241 *Argulus foliaceus* L. and *Piscicola geometra* L. as mechanical vectors of spring viraemia of carp virus (SVCV)
W. AHNE

243 Ultrastructural observations on the haemoparasite *Haematractidium scombri* in the Atlantic mackerel, *Scomber scombrus* L.
J. E. BODAMMER AND SHARON A. MACLEAN

249 *Fusarium tabacinum* (Beyma) Gams. as a gill parasite in the crayfish, *Austropotamobius pallipes* Lereboullet
D. J. ALDERMAN AND JANE L. POLGLASE

NUMBER 3: MAY 1985

253 The reaction of the immune system of fish to vaccination: development of immunological memory in carp, *Cyprinus carpio* L., following direct immersion in *Aeromonas hydrophila* bacterin
C. H. J. LAMERS, M. J. H. DE HAAS AND W. B. VAN MUISWINKEL

263 The impact of solar ultraviolet radiation upon the skin of rainbow trout, *Salmo gairdneri* Richardson, farmed at high altitude in Bolivia
A. M. BULLOCK AND R. R. COUTTS

273 A viral dermatitis of the smooth dogfish, *Mustelus canis* (Mitchill)
L. LEIBOVITZ AND S. S. LEBOUITZ

281 *Sphaerospora tincae* Plehn, 1925 in tench, *Tinca tinca* L., fry
W. HERMANNS AND W. KÖRTING

289 Malachite green: a review
D. J. ALDERMAN

299 *Zschokkella russelli* Tripathi (Myxozoa: Myxosporea) from the five-bearded rockling, *Ciliata mustela* L., (Teleostei: Gadidae) in Wales
ANGELA J. DAVIES

309 Pathogenicity and infectivity of a rickettsia-like organism in the sea scallop, *Placopecten magellanicus*
G. GULKA AND PEI WEN CHANG

Short Communications

319 Host response to rickettsial infection in blue mussel, *Mytilus edulis* L.
G. GULKA AND PEI WEN CHANG

325 Liquid overlay plaquing of channel catfish virus
C. D. BUCK AND P. C. LOH

329 *Kudoa thyrsitis* (Gilchrist) (Myxosporea: Multivalvulida) in Atlantic salmon, *Salmo salar* L.
L. W. HARRELL AND T. M. SCOTT

333 Branchial osteochondroma in a gilthead sea bream, *Sparus aurata* L., cultured in the Gulf of Aqaba
G. NASH AND C. PORTER

337 **Book Reviews**

NUMBER 4: JULY 1985

339 The toxicity of the cyanobacterium *Microcystis aeruginosa* to rainbow trout, *Salmo gairdneri* Richardson
M. J. PHILLIPS, R. J. ROBERTS, J. A. STEWART AND G. A. CODD

345 Detection of transferable R plasmids in strains of the fish-pathogenic bacterium *Pasteurella piscicida*
T. AOKI AND T. KITAO

351 A coccolithophorid algal dermatitis of the spiny dogfish, *Squalus acanthias* L.
L. LEIBOVITZ AND S. S. LEBOUITZ

359 *In vitro* effects of fungicides on *Haliphthoros philippinensis*
G. D. LIO-PO, M. C. L. BATICADOS, C. R. LAVILLA AND M. E. G. SANVICTORES

367 Muscular and myocardial degeneration in cultured Atlantic salmon, *Salmo salar* L., suffering from 'Hitra disease'
M. FJØLSTAD AND A. L. HEYERAAS

Short Communications

373 Mesothelioma in rainbow trout, *Salmo gairdneri* Richardson
R. L. HERMAN

377 Retinoblastoma in the spring cavefish, *Chologaster agassizi* Putnam
J. W. FOURNIE AND R. M. OVERSTREET

383 Atypical infection of rainbow trout, *Salmo gairdneri* Richardson, with *Yersinia ruckeri*
G. N. FRERICHS, J. A. STEWART AND R. O. COLLINS

389 Histopathology of *Edwardsiella ictaluri* in channel catfish, *Ictalurus punctatus* (Rafinesque)
T. MIYAZAKI AND J. A. PLUMB

393 Vertical transmission of infectious haematopoietic necrosis virus in sockeye salmon, *Oncorhynchus nerka* (Walbaum): isolation of virus from dead eggs and fry
D. MULCAHY AND R. J. PASCHO

NUMBER 5: SEPTEMBER 1985

397 Efficacy of specific antibody against agglutinating *Aeromonas salmonicida* strains on infectivity and vaccination with inactivated protease
D. K. SAKAI

407 Chronic glomerulonephritis in returning fall chinook salmon, *Oncorhynchus tshawytscha* (Walbaum), from the Rogue River, Oregon
T. R. MEYERS AND B. P. MCPHERSON

417 Detection of channel catfish virus in channel catfish, *Ictalurus punctatus* (Rafinesque): use of a nucleic acid probe
JANET A. WISE AND J. A. BOYLE

425 Epidermal hyperplasia of walleye, *Stizostedium vitreum vitreum* (Mitchill), associated with retrovirus-like type-C particles: prevalence, histologic and electron microscopic observations
T. YAMAMOTO, R. K. KELLY AND O. NIELSEN

437 Serum chemistry of diseased English sole, *Parophrys vetulus* Girard, from polluted areas of Puget Sound, Washington
E. CASILLAS, M. S. MEYERS, LINDA D. RHODES AND B. B. MCCAIN

451 Niacin requirement for optimum growth, feed conversion and protection of rainbow trout, *Salmo gairdneri* Richardson, from ultraviolet-B irradiation
H. A. POSTON AND MARILYN J. WOLFE

Short Communications

461 The *in vitro* formation of teleost multinucleate giant cells
C. J. SECOMBES

465 A lymphoproliferative disorder in a channel catfish, *Ictalurus punctatus* (Rafinesque)
P. R. BOWSER, C. P. MCCOY AND J. R. MACMILLAN

471 Isolation of spring viraemia of carp virus from asymptomatic broodstock carp, *Cyprinus carpio* L.
L. BÉKÉSI AND L. CSONTOS

473 Rapid preliminary screening of *Saprolegnia* on fish
L. G. WILLOUGHBY

477 Microcultures of *Sarotherodon mossambicus* (Peters) cells: their use in detecting fish viruses
D. H. LEWIS AND J. E. MARKS

479 Chemiluminescent responses of striped bass, *Morone saxatilis* (Walbaum), phagocytes to *Vibrio* spp.
J. W. STAVE, B. S. ROBERSON AND F. M. HETRICK

NUMBER 6: NOVEMBER 1985

485 Detection of channel catfish virus in asymptomatic adult catfish, *Ictalurus punctatus* (Rafinesque)
JANET A. WISE, P. R. BOWSER AND J. A. BOYLE

495 Dynamics of challenge infections of *Gyrodactylus bullatarudis* Turnbull (Monogenea) on guppies, *Poecilia reticulata* (Peters)
MARILYN E. SCOTT

505 Epizootiology of *Renibacterium salmoninarum*, the causal agent of bacterial kidney disease in salmonid fish
B. AUSTIN AND J. N. RAYMENT

511 Nodular gill disease: a unique form of proliferative gill disease in rainbow trout, *Salmo gairdneri* Richardson
P.-Y. DAOUST AND H. W. FERGUSON

523 Moderation of the experimental carrageenin granuloma in the plaice, *Pleuronectes platessa* L., by reduction in temperature
M. TIMUR, G. TIMUR AND R. J. ROBERTS

529 *Sanguinicola fontinalis* sp. nov. (Digenea: Sanguinicolidae): a blood parasite of brook trout, *Salvelinus fontinalis* (Mitchill), and longnose dace, *Rhinichthys cataractae* (Valenciennes)
G. L. HOFFMAN, B. FRIED AND J. E. HARVEY

539 Vibriosis in channel catfish, *Ictalurus punctatus* (Rafinesque)
D. H. LEWIS

Short Communications

547 The effect of ultraviolet-B radiation upon the skin of the plaice, *Pleuronectes platessa* L., infested with the bodonid ectoparasite *Ichthyobodo necator* (Henneguy, 1883)
A. M. BULLOCK

551 Multiple capillary haemangiomas in the scamp, *Mycteroperca phenax* Jordan and Swain
J. W. FOURNIE, R. M. OVERSTREET AND L. H. BULLOCK

557 Isolation of channel catfish virus from channel catfish, *Ictalurus punctatus* (Rafinesque), broodstock
P. R. BOWSER, A. D. MUNSON, H. H. JARBOE, R. FRANCIS-FLOYD AND P. R. WATERSTRAT

563 Degenerative myopathy in channel catfish, *Ictalurus punctatus* (Rafinesque), maintained on rations containing purified fatty acids
D. H. LEWIS, J. E. MARKS AND R. R. STICKNEY